Part No. P0993299 05

Business Communications Manager

LAN CTE Configuration Guide

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Preface

Business Communications Manager LAN CTE is one of the Nortel Networks line of Computer Telephony Integration (CTI) products. The LAN CTE software provides an interface between your Personal Computer, your telephone and the Business Communications Manager system. With the LAN CTE software, you can operate CTE (Computer Telephony Engine) and Telephony Application Programming Interface (TAPI) applications from your computer.

Before you begin

This guide is intended for network administrators using Windows-based computers and Business Communications Manager LAN CTE. This guide assumes that you have the following background:

- Working knowledge of the Windows operating system
- Understanding of the transmission and management protocols used on your network
- Experience with windowing systems or graphical user interfaces (GUIs)
- Familiarity with the network management platform (for example, Domain Manager) on the system with which you are using

Text conventions

This guide uses the following text conventions:

`bold Courier text`	Indicates command names and options and text that you need to enter. Example: Use the **`dinfo`** command. Example: Enter **`show ip`** {**`alerts`**|**`routes`**}.
italic text	Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is `show at <valid_route>`, *`valid_route`* is one variable and you substitute one value for it.
bold text	indicates dialog boxes, buttons and menu options
separator (>)	Shows menu paths. Example: Protocols > IP identifies the IP option on the Protocols menu.

Acronyms

This guide uses the following acronyms:

API	Application Programming Interface
CTE	Computer Telephony Engine
CTI	Computer Telephony Integration
ERC	Express Routing Code
IP	Internet Protocol
O/S	operating system
TAPI	Telephony Application Programming Interface
TSP	TAPI Service Provider
URL	Uniform Resource Locator

Related publications

- *Software Keycode Installation Guide*
- *Personal Call Manager User Guide*
- *Programming Operations Guide*

Chapter 1
Introduction to LAN CTE

The Business Communications Manager Computer Telephony Integration (CTI) range of products provides an interface between your personal computer and your Business Communications Manager system. With these products, you can use telephony applications via the Windows® operating system to control your telephone.

One of the basic software components of the Business Communications Manager CTI is LAN CTE. LAN CTE works with Microsoft® TAPI and Windows® to allow your telephony application to communicate with and control your telephone.

How does LAN CTE work?

LAN CTE works with four other software components, each providing a different function. The four software components involved are:

- Telephony applications - Telephony applications are installed on client computers. LAN CTE users run telephony applications to control their telephones. Through these applications, LAN CTE users give commands, such as `answer telephone`, to the Business Communications Manager system. The telephony application also display messages, such as telephone ringing, which are received from the Business Communications Manager system. An example of a telephony application is Personal Call Manager.
- **Windows operating system** (O/S) - Windows is installed on the server and the client computers. Windows passes commands from the telephony application to the Telephony Application Programming Interface (TAPI), and messages from TAPI to the telephony application.
- **Microsoft Telephony Application Programming Interface (TAPI)** - TAPI is installed on the client computers. TAPI converts industry standard commands received from Windows into a format that LAN CTE can understand. It also converts messages from LAN CTE into an industry standard format and passes them to Windows.
- **TAPI Service Provider (TSP)** - TSP is installed on the client computer if you are operating TAPI applications. It acts as an interface between the LAN CTE communications software and TAPI.

LAN CTE - LAN CTE is installed on the Business Communications Manager system and on the client computers as a Windows NT service. LAN CTE receives commands from TSP and converts them into a format that is understood by the Business Communications Manager. It also receives messages from the Business Communications Manager and converts them into a format that is understood by TSP.

Figure 1 on page 10 shows how messages and commands are passed between the client computers and the Business Communications Manager system.

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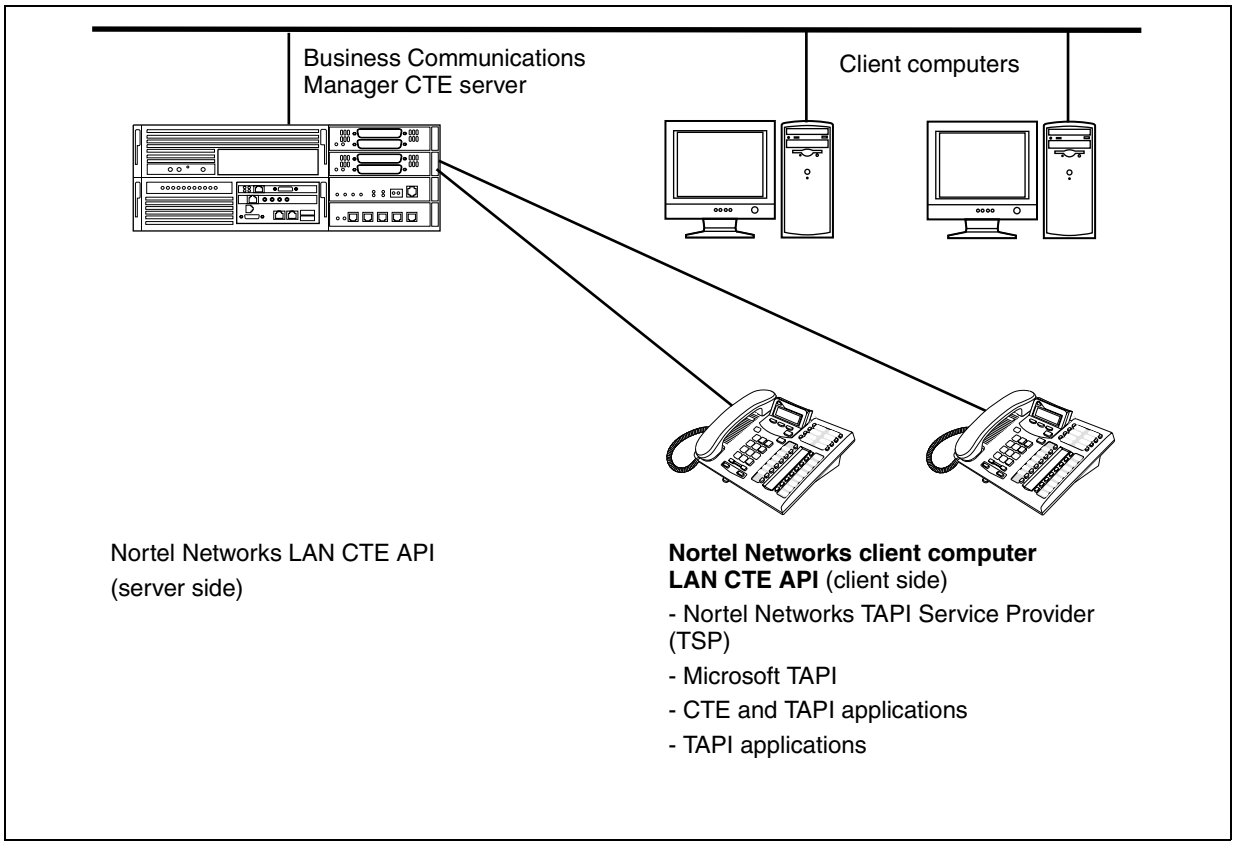
Figure 1 LAN CTE server and client configuration overview


Business Communications Manager CTE server
Client computers
Nortel Networks LAN CTE API (server side)
Nortel Networks client computer LAN CTE API (client side)
- Nortel Networks TAPI Service Provider (TSP)
- Microsoft TAPI
- CTE and TAPI applications
- TAPI applications

Operating system requirements

LAN CTE supports client computers that are using the following operating systems:

- Windows 95
- Windows 98
- Windows ME
- Windows NT 4.0
- Windows 2000
- Windows XP

If you will be using TAPI applications, ensure that you have Microsoft TAPI 2.1 or higher installed on computers that are actively connected to the Business Communications Manager system.

Chapter 2
Configuring the Business Communications Manager system and clients

You must install the LAN CTE software on the client computers connected to the BBusiness Communications Manager system. You must also configure the LAN CTE software on your Business Communications Manager system if you are installing both CTE and TAPI applications. (You do not need to configure the Business Communications Manager if you will be using only CTE applications.) With LAN CTE, TAPI Service Provider (TSP) is installed only on the client computer, not the Business Communications Manager system. LAN CTE does not require a Microsoft domain to function.

Entering the LAN CTE Keycode

Before installing the LAN CTE software on the Business Communications Manager system or client computer, enter the software keycode.

To enter the LAN CTE keycode:

1. Log on to Unified Manager.
2. Click the **System** key and then click the **Licensing** heading.
3. On the **Configuration** menu, click **Add a Keycode**.
4. In the **Keycode** box, enter the 24 digit Software Keycode number.
   Note: Make sure you enter a hyphen between each eight digit segment.
5. Click the **Save** button.
   After the Software Keycode is accepted and enabled, a confirmation message appears.
6. Click the **OK** button.
   Refer to the *Business Communications Manager Software Keycode Installation Guide* for more details.

Note: As part of entering the keycode information, you specify the number of devices allowed. This is the number of concurrent LAN CTE Desktops allowed. Each computer that will install and use LAN CTE software will be counted as a LAN CTE Desktop. Therefore, you need one license per computer.

Configuring LAN CTE software on Business Communications Manager

The steps you perform to configure the LAN CTE software on Business Communications Manager are different if you want to use TAPI applications.

If you want to use CTE applications only, refer to "Configuration for CTE applications only" on page 12 for the steps required to configure LAN CTE.

If you want to use CTE and TAPI applications, refer to "Configuration for CTE and TAPI applications" on page 12 for the steps required to configure LAN CTE.

Configuration for CTE applications only

If you intend to use only Computer Telephony Engine (CTE) applications, the Business Communications Manager system is pre-configured for CTE. You do not need to perform a server configuration. However, you must install the LAN CTE software on the client computer. See "Installing LAN CTE software on the client computer" on page 16.

Configuration for CTE and TAPI applications

If you intend to install Telephony Application Programming Interface (TAPI) applications as well as CTE applications on your Business Communications Manager system, you must complete a full configuration (both server and client).

You configure the LAN CTE software on the Business Communications Manager system from Unified Manager. See "Installing LAN CTE software on the client computer" on page 16.

Starting a Unified Manager session

1. Start a web browser on a computer with a LAN connection to the Business Communications Manager system. For information about the web browser requirements, refer to the *Business Communications Manager Programming Operations Guide*.
2. Enter the IP address of the Business Communications Manager system.
   For example: **https://10.10.10.1**.

   Note: If you do not know the IP address of the Business Communications Manager system, ask your network administrator.

3. Click the **Configure** button.
4. Type your user name in the **Login** box.
5. Type your password in the **Password** box.
6. Click the **Login** button.

Enabling the LAN CTE software on Business Communications Manager

To enable the LAN CTE software:

1 Click the **Services** key and then click the **LAN CTE Configuration** heading.

2 Click the **Settings** tab.

3 Click the **Allow LAN CTE Desktop Clients** drop list and then click **Yes**.

Adding LAN CTE clients that use TAPI applications

In order to use TAPI applications such as Personal Call Manager that are installed on your computer, you must associate the computer with a telephone connected to the Business Communications Manager system. You do so by mapping the telephone's extension number to a network user ID. You must assign an extension number to each client computer's network user ID. You assign extension numbers using the LAN CTE Configuration menu in Unified Manager. The Business Communications Manager system uses this information to make sure the correct telephone is controlled by a particular LAN CTE client.

Note: Although a LAN CTE client can log on from any computer on the network, the extension number associated with that client does not change unless you change it from the LAN CTE Configuration menu. This allows LAN CTE clients to receive TAPI messages for their telephone from any computer they log on to. This also means that the TAPI messages LAN CTE clients receive are always for the telephone assigned to them, not necessarily the telephone beside the computer they are using.

Any of the following network user IDs can be mapped to telephone extension numbers in order to associate a computer with a telephone:

- IP address
- Machine (computer) name
- Domain/User Account

Any of the network user identifiers can be used but only one is needed. For example, if the IP address is configured for a DN, that same computer does not have to use the other two identifiers.

The network user ID you select depends on your network configuration. If you want to associate a telephone extension number with a particular user, for example for someone travelling with their laptop who wants to check their phone messages, you would choose the user account. The phone the user is assigned to may or may not be physically located next to the computer. More commonly, extension numbers are associated with the computer, for example if there are multiple users using that computer. In this case you would map the IP address or machine name to the extension number. If you network uses dynamic IP addresses, the machine name should be entered as the network identifier. For more detail, refer to the table "Selecting Network user IDs" on page 14.

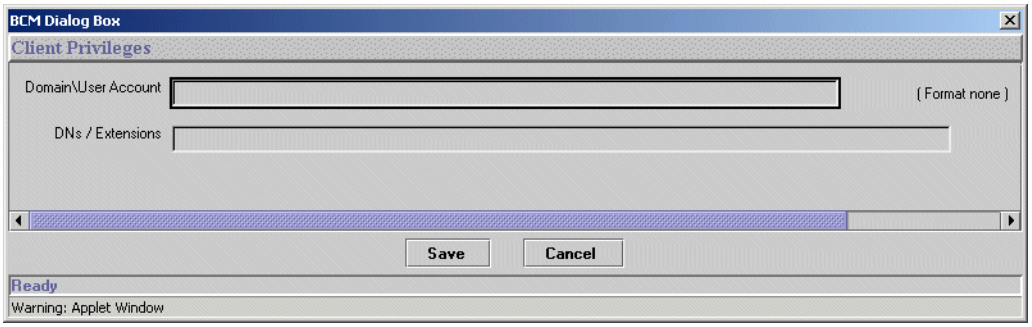
Table 1 Selecting Network user IDs

Network user ID	When to use an ID
Domain name/User account	For assigning a telephone extension number to a particular user.
IP address	To allow multiple users to control and access an extension number through the same computer, for example at Call Centers. Works with static IP addresses.
Machine name	To allow multiple users to control and access an extension number through the same computer, for example at Call Centers. Works with dynamic IP addresses.

To associate an extension number with a computer:

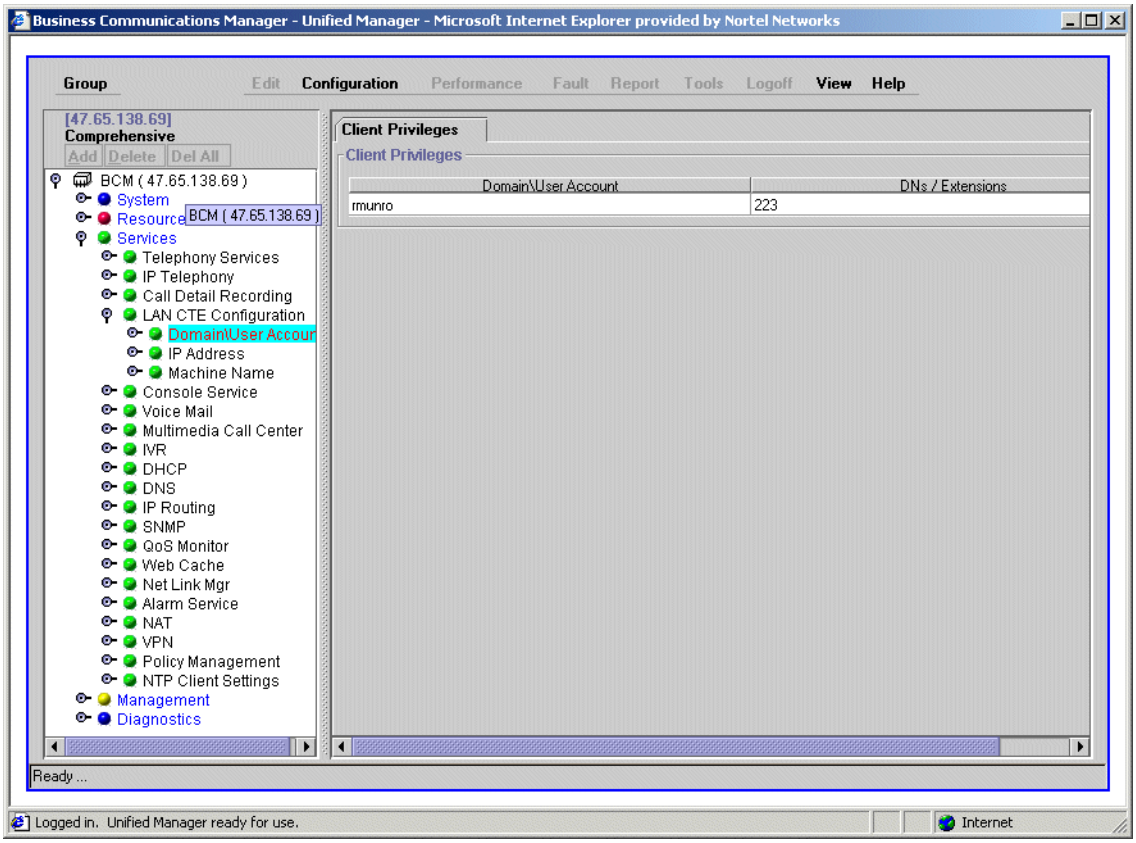
1. From Unified Manager, click the **Services** key and then click the **LAN CTE Configuration** key.
2. Select one of the LAN CTE Configuration headings (Domain/User Account, IP Address, Machine Name), depending on your network configuration ("Selecting Network user IDs" on page 14).
   The **Client Privileges** screen appears.
3. On the **Configuration** menu, click **Add Entry to Privileges List**.
   The Client Privileges dialog box appears.

Figure 2 Client Privileges dialog box



4. Enter the client's user account, the computer's IP address, or computer's machine name.
5. Enter the extension of the client's telephone.
6. Click the **Save** button.
   The information appears on the Client Privileges screen.
7. Repeat steps 2 to 6 for each computer that will control an extension number.

Figure 3 LAN CTE Client Privileges screen



Removing LAN CTE clients

If there is a LAN CTE client that no longer uses LAN CTE, you can delete that client. To delete a LAN CTE client and its associated extension number:

1. Start a Unified Manager session.
   For more information, see "Starting a Unified Manager session" on page 12.
2. Click the **Services** key and then click the **LAN CTE Configuration** key.
3. Click the heading that has the LAN CTE client you want to remove.
   The Client Privileges screen appears.
4. Click the row with the client to be removed from the Client Privileges screen.
5. On the **Configuration** menu, click **Remove Entry from Privileges List**.
   The Select an Option dialog box appears.
6. Click the **Yes** button.
   The entry is removed from the Client Privileges screen.

Installing LAN CTE software on the client computer

The steps you perform to install the LAN CTE software on the client computer are different if you want to use TAPI applications.

If you want to use CTE applications only, refer to "Installing LAN CTE for CTE applications only" on page 16 for the steps required to install the LAN CTE software.

If you want to use CTE and TAPI applications, refer to "Installing LAN CTE for CTE and TAPI applications" on page 18 for the steps required to install the LAN CTE software.

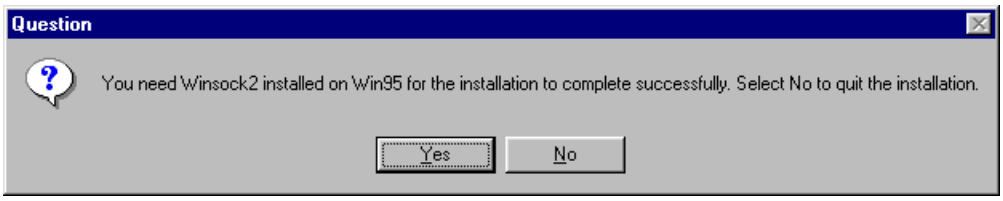
Note: You need to know the computer name or Published IP Address of the Business Communications Manager system to complete the LAN CTE client installation.

Installing LAN CTE for CTE applications only

To install the LAN CTE on the client computer:

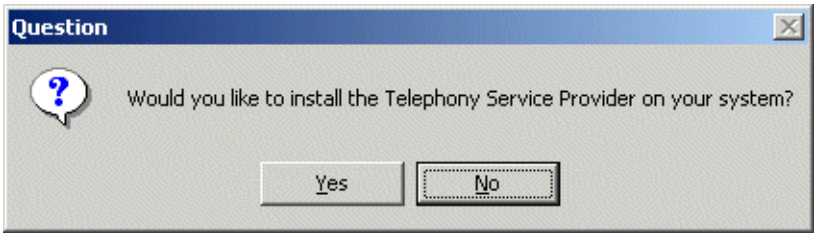
1. Quit any Windows-based programs that are running.
2. Start a web browser on a computer with a LAN connection to the Business Communications Manager system.
3. Enter the IP address of the Business Communications Manager system.
   For example: **https://10.10.10.1**.
4. On the Unified Manager front page, click the **Install Clients** button.
   The Client Install Application page appears.
5. Click the **LAN CTE Client** link.
   The download page appears.
6. Click the **Download LAN CTE Client** button.
   A file download window appears.
7. Select **Save this program to disk** and click **OK**.
   The SaveAs dialog appears.
8. Choose a location on the client computer to save this file to and then click **Save**.
   The file begins downloading.
9. When the file is finished downloading, double-click on it.
   The install application begins.
10. Follow the on-screen instructions.
    You may see the message shown in the figure "Winsock v. 2 message" on page 17. This message indicates you may not have the latest Winsock version 2 files. See Chapter 4, "Troubleshooting," on page 25 for troubleshooting tips.

Figure 4 Winsock v. 2 message


Question
You need Winsock2 installed on Win95 for the installation to complete successfully. Select No to quit the installation.
Yes
No

11 When the Welcome dialog box appears, click the **Next** button.
The message shown below appears.

Figure 5 Install TSP dialog box



12 If you are not installing TAPI applications, click **No**. (If you are installing TAPI applications, refer to the section "Installing LAN CTE for CTE and TAPI applications" on page 18.)
The Enter Information dialog box appears.

13 The Enter Information dialog box appears. The computer name or IP address may be filled in, otherwise type in the information.

Note: If you are entering an IP address, you must enter the Published IP Address of the Business Communications Manager. If you do not know the Published IP Address of the Business Communications Manager, contact your system administrator.

14 Click **Next**.
The Question dialog box appears.

15 If the computer name or IP address displayed is correct, click **Yes**. If it is not, click **No** and the install will return you to the Enter Information dialog box.

16 When the Setup Complete screen appears, click **Yes** to restart your computer immediately, **No** to restart later. (You must restart the computer for the installed service to become operational.)

17 Click **Finish**.

18 Repeat steps 1 to 17 for each computer that will use LAN CTE software.

You are now ready to install CTE applications. Follow the install instructions for the application(s).

Installing LAN CTE for CTE and TAPI applications

To install the LAN CTE on the client computer:

1. Quit any Windows-based programs that are running.
2. Start a web browser on a computer with a LAN connection to the Business Communications Manager system.
3. Enter the IP address of the Business Communications Manager system.
   For example: **https://10.10.10.1**.
4. On the Unified Manager front page, click the **Install Clients** button.
   The Client Install Application page appears.
5. Click the **LAN CTE Client** link.
   The download page appears.
6. Click the **Download LAN CTE Client** button.
   A file download window appears.
7. Select **Save this program to disk** and click **OK**.
   The Save As dialog box appears.
8. Choose a location on the client computer to save this file to and click **Save**.
   The file begins downloading.
9. When the file is finished downloading, double-click on it.
   The install application begins.
   You may see the message shown in the figure "Winsock v. 2 message" on page 17. This indicates you may not have the latest Winsock version 2 files. See Chapter 4, "Troubleshooting," on page 25 for troubleshooting tips.
10. When the Welcome dialog box appears, click the **Next** button.
    The message shown in the figure "Install TSP dialog box" on page 17 appears.
11. If you are installing TAPI applications, click **Yes**. (If you are not installing TAPI applications, see the section "Installing LAN CTE for CTE applications only" on page 16**.**
12. If you see the message shown below, the TSP install was unsuccessful. See Chapter 4, "Troubleshooting," on page 25 for troubleshooting tips.

Figure 6 TSP installation message

13. The Enter Information dialog box appears. The computer name or IP address may be filled in, otherwise type in the information.

Note: If you are entering an IP address, you must enter the Published IP Address of the Business Communications Manager. If you do not know the Published IP Address of the Business Communications Manager, contact your system administrator.

14 Click **Next**.
The Question dialog box appears.

15 If the computer name or IP address displayed is correct, click **Yes**. If it is not, click **No** and the install will return you to the Enter Information dialog box.

16 When the Setup Complete screen appears, click **Yes** to restart your computer immediately, **No** to restart later. (You must restart the computer for the installed service to become operational.)

17 Click **Finish**.

18 Repeat steps 1 to 17 for each computer that will use LAN CTE and have TAPI applications installed.

Installing TAPI 2.1 for CTE and TAPI applications

Note: The TAPI 2.1 information in this guide is a supplement to the *Microsoft TAPI Readme.txt* file provided with the Microsoft TAPI 2.1 Upgrade. Be sure to read this file and install TAPI 2.1 according those instructions.

The procedure you use to install TAPI 2.1 depends on the operating system installed on the client computer. Refer to one of the following procedure for instructions on installing TAPI 2.1:

- "Installing TAPI 2.1 on Windows NT 4.0 Workstations" on page 19
- "Installing TAPI 2.1 on Windows 95" on page 20
- "Installing TAPI 2.1 on Windows 98" on page 20
- "Installing TAPI 2.1 on Windows ME" on page 21
- "Installing TAPI 2.1 on Windows 2000" on page 21
- "Installing TAPI 2.1 on Windows XP" on page 21

Installing TAPI 2.1 on Windows NT 4.0 Workstations

To install TAPI 2.1 on Windows NT 4.0 Workstation computers, use Windows NT 4.0 Service Pack 4 or later. Service Pack 4 automatically adds TAPI 2.1 to the Windows NT Workstation. Install Service Pack 4 or later before you configure the TAPI client.

Caution: You must install Service Pack 4 or later on client computers that use Windows NT. Service Pack 4 contains additional improvements to the Windows NT Workstation telephony component that are required for LAN CTE.

Note: Windows NT 4.0 Service Pack 4 is available on the Microsoft web site.To install Service Pack 4, follow the instructions in the *Readme.txt* file included with it.

Installing TAPI 2.1 on Windows 95

TAPI 2.1 is available on the Microsoft web site. It is important to read the *Readme.txt* file and the license agreement included with the upgrade before installing. TAPI 2.1 is also available from the Business Communications Manager Install Client button.

To install TAPI 2.1 for Windows 95 on the client computer:

1. Quit any Windows-based programs that are running.
2. Start a web browser on a computer with a LAN connection to the Business Communications Manager system.
3. Enter the IP address of the Business Communications Manager system.
   For example: **https://10.10.10.1**.
4. On the Unified Manager front page, click the **Install Clients** button.
   The Client Install Application page appears.
5. Click the **TAPI 2.1 Installation** link.
   The Download page appears.
6. Click on the **Download Microsoft TAPI 2.1** button.
   A file download window appears.
7. Select **Save this program to disk** and click **OK**.
   The SaveAs dialog appears.
8. Choose a location to save this file to and click **Save**.
   The file begins downloading.
9. When the file is finished downloading, double-click on it.
   The install application begins.
10. Follow the on-screen instructions.

You must also install LAN CTE on all the client computers which will be using CTE applications on the Business Communications Manager system. Refer to "Installing LAN CTE software on the client computer" on page 16.

Installing TAPI 2.1 on Windows 98

You do not need to install TAPI 2.1 on Windows 98 computers. TAPI 2.1 is included with Windows 98.

Installing TAPI 2.1 on Windows ME

You do not need to install TAPI 2.1 on Windows ME computers. TAPI 2.1 is included with Windows ME.

Installing TAPI 2.1 on Windows 2000

You do not need to install TAPI 2.1 on Windows 2000 computers. A version of TAPI that is compatible with TAPI 2.1 is included with Windows 2000.

Installing TAPI 2.1 on Windows XP

You do not need to install TAPI 2.1 on Windows XP computers. A version of TAPI that is compatible with TAPI 2.1 is included with Windows XP.

Installing CTE and TAPI applications

You are now ready to install CTE applications and TAPI applications. An example of a TAPI application is Personal Call Manager. Follow the install instructions for the application(s).

Setting the Dialing Properties

Some telephony applications use the dialing properties to define how calls are dialed. Refer to the documentation that came with the telephony application to determine if the dialing properties are required for the client computer.

Verifying that LAN CTE is installed correctly

To verify that LAN CTE is correctly installed:

1. Install Personal Call Manager on a computer that is a client of the Business Communications Manager system. Refer to the *Business Communications Manager Personal Call Manager User Guide* for information on how to install this TAPI application.
2. Start Business Communications Manager Personal Call Manager.
3. Test LAN CTE by using Personal Call Manager to make and receive calls and establish one conference call.

If the calls are successful, LAN CTE is properly installed and configured for TAPI.

If the call is not successful, follow the troubleshooting procedures (see Chapter 4, “Troubleshooting,” on page 25).

Chapter 3
Viewing LAN CTE information

After LAN CTE is installed and configured, you can view information about LAN CTE and how it is operating. You can view:

- Information about LAN CTE
- LAN CTE error messages

Accessing the LAN CTE information

From the LAN CTE Configuration screen in Unified Manager, you can:

- View the LAN CTE settings, including description version number and status
- View the LAN CTE licensing information, including the maximum number of LAN CTE Desktops allowed with your Business Communications Manager configuration, number of permanent and try ‘n buy Desktop licenses, and the number of active LAN CTE Desktop licenses
- the client privileges registered with the LAN CTE

To access LAN CTE information:

1 Start a Unified Manager session.
For more information, “Starting a Unified Manager session” on page 12.

2 On the navigation tree, click the **Services** key and then click the **LAN CTE Configuration** heading. The LAN CTE Settings screen appears.

Attribute	Description
Description	Shows a description of the LAN CTE service.
Version	Shows the version number of LAN CTE service.
CTE Server Status	Shows the status of the LAN CTE service. The status can be: **Running** - The LAN CTE service is operating and can communicate with the Business Communications Manager system. **Enabled** - A user has enabled LAN CTE, but the service is not yet operating. **Disabled** - A user has disabled LAN CTE.
Allow LAN CTE Desktop Client	You can choose to allow or deny LAN CTE Desktop Clients. **Yes** - LAN CTE Desktop Clients are allowed. **No** - LAN CTE Desktop Clients are not allowed.

3 Click the **Licensing Information** tab.
The LAN CTE Licensing Information screen appears.

Attribute	Description
Maximum # LAN CTE Desktops	Shows the maximum number of LAN CTE desktop clients you can have on your Business Communications Manager system. This number is determined by the number of Permanent and Try ‘N Buy Desktop Licenses you have purchased.
Desktop Licenses - Permanent	Shows the number of Permanent LAN CTE Desktop Licenses installed on your Business Communications Manager system.
Desktop Licenses - Try ‘N Buy	Shows the number of Try ‘N Buy LAN CTE Desktop Licenses installed on your Business Communications Manager system.
# Active LAN CTE Desktops	You can choose to allow or deny LAN CTE Desktop Clients. **Yes** - LAN CTE Desktop Clients are allowed. **No** - LAN CTE Desktop Clients are not allowed.

LAN CTE error messages

When LAN CTE encounters an error, an error message appears on the computer display. In this message is a description of what the error is and a recommendation about what to do.

Chapter 4
Troubleshooting

This chapter describes problems you may encounter when using LAN CTE and possible resolutions.

- "Troubleshooting while using LAN CTE" on page 25
- "LAN CTE is not operating" on page 25
- "LAN CTE client does not install" on page 26

Troubleshooting while using LAN CTE

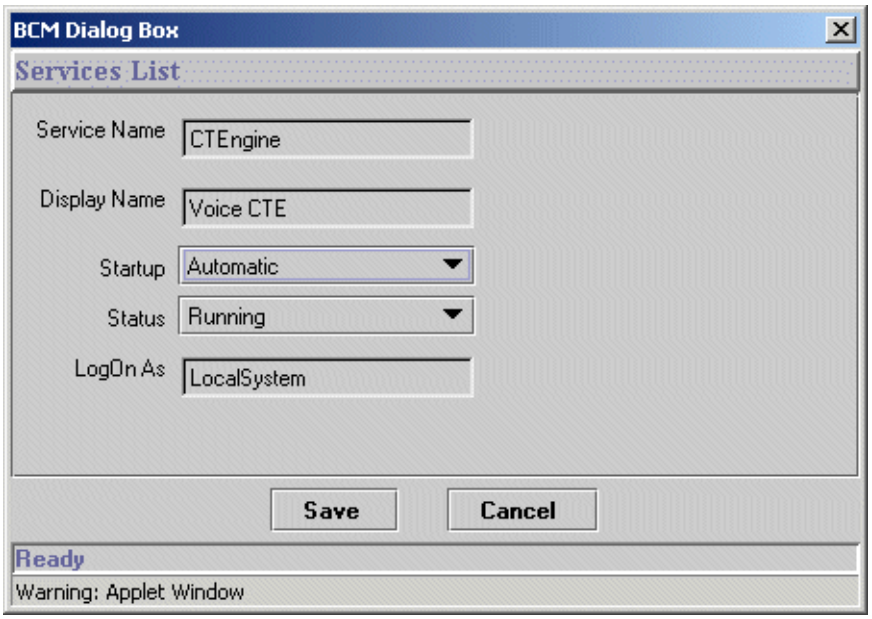
For most errors and exceptions, the Business Communications Manager displays an error message. The error message describes the problem and recommends a solution. Try to troubleshoot these errors yourself before contacting Technical Support.

LAN CTE is not operating

Check that the service is still running:

1. Open Unified Manager (see "Starting a Unified Manager session" on page 12).
2. Click the **LAN CTE Configuration** heading to display the Settings and Licensing screen. The Description will be blank if the service is not running.
3. Click the **Diagnostics** key.
4. Click the **Service Manager** heading.
5. Scroll down the list until you see **CTEngine.** The Status column indicates whether the LAN CTE service is running or stopped.
6. If it has stopped, click on the **Configuration** menu at the top of the screen.
7. Click **Modify Services**.
   The Property Sheet appears.

Figure 7 Services List Property Sheet



8 Select **Start** from the **Status** list box.

9 Click the **Save** button.

Check that LAN CTE is enabled and that you have a sufficient number of Desktop licenses:

1 Open Unified Manager (see "Starting a Unified Manager session" on page 12).

2 Click the **Services** key and then click the **LAN CTE Configuration** menu to display the Settings and Licensing screen.

3 Check that the **Status** field reads Enabled. If it does not, select **Enabled** from the list box.

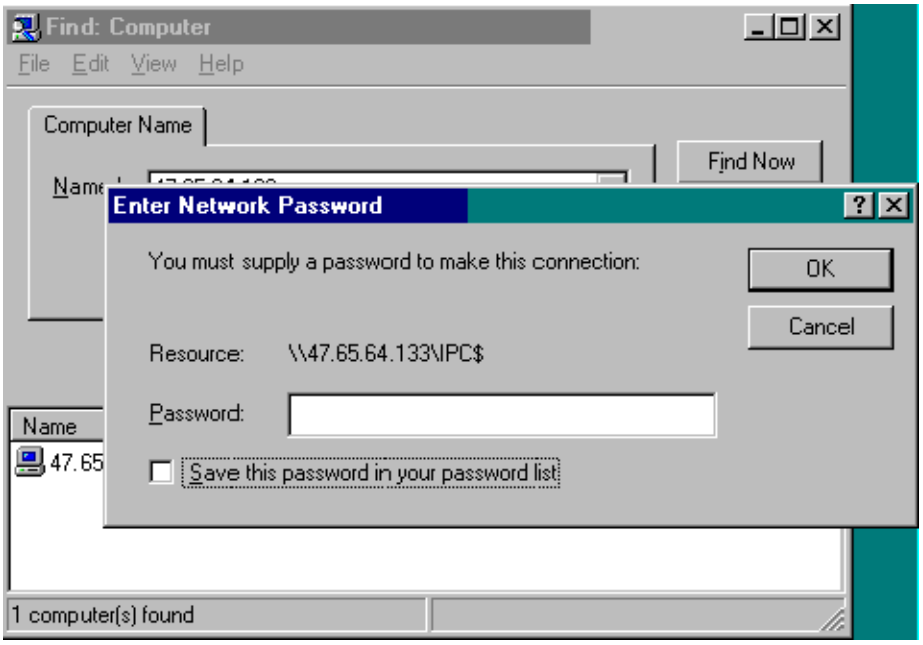
4 Click Licensing Information.

5 Check that the Active number of Desktops does not exceed the maximum number allowed.

LAN CTE client does not install

Windows 95 and 98 users may see the **Enter Network Password** dialog box shown in the figure "Domain message" on page 27, asking for a network password. This message is displayed when the Business Communications Manager system is not in the same domain as the client computer. See your network administrator or the Troubleshooting section of the *Business Communications Manager Programming Operations Guide*.

Figure 8 Domain message



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